



## Babassu best

Potential of various oleaginous crops for biodiesel in Brazil

Species	Oil content (%)	Productivity (kg/ha/year)
Castor oil	45 - 55	680
Sunflower	45 - 55	1 425
Peanut	40 - 50	2 353
Sesame	48 - 55	600
Canola	38 - 45	1 100
Palm ( <i>Elaeis guineensis</i> )	35 - 45	15 000
Soy-bean	18 - 21	2 400
Cotton	15 - 16	1 950
Babassu	6 - 7	25 000
Corn	4 - 5	3 300

**Activated charcoal.** Activated charcoal for industrial filters has also become an important component of Babassu pod industrialization. This is the principal market niche for at least one company (Tobasa A.S.). However, this is a very small market niche in Brazil, which does not demand a large quantity of pods.

**New technologies.** Tobasa A.S. uses patented technology to utilize the entire pod in its production process. While this process is proprietary and not generally available, the Mussambê Foundation, in the north-eastern state of Ceará, has promoted the creation of new technology for SMEs that also processes the entire nut. In this process the epicarp is extracted to produce fibres, the endocarp to produce flour and starch, the mesocarp to produce charcoal, and the nut to produce oil. This new process has been successfully implemented in the state of



**Manual break:** In manual extraction, only the nut (roughly 7% of the pod) is used.  
Photo: Jose M.F. Frazao

Ceará. The challenge now is to make this new technology widely available to be transferred and absorbed by others interested in processing Babassu pods.

It is known that technological innovation accompanied by disruptions or radical organizational changes is not easy, especially in places such as the Amazon, where market barriers are huge; information is very costly; and knowledge and human capital are not adequately managed by enterprises and industries. Brazil requires a national or regional innovation system and policy to make such changes faster, safer, and more efficient for stakeholders.

## ITTO fellowships offered

ITTO offers fellowships through the Freezailah Fellowship Fund to promote human resource development and to strengthen professional expertise in member countries in tropical forestry and related disciplines. The goal is to promote the sustainable management of tropical forests, the efficient use and processing of tropical timber, and better economic information about the international trade in tropical timber.

### Eligible activities include:

- participation in short-term training courses, training internships, study tours, lecture/demonstration tours and international/regional conferences;
- technical document preparation, publication and dissemination, such as manuals and monographs; and
- post-graduate studies.

**Priority areas:** eligible activities aim to develop human resources and professional expertise in one or more of the following areas:

- improving transparency of the international tropical timber market;
- promoting tropical timber from sustainably managed sources;
- supporting activities to secure tropical timber resources;
- promoting sustainable management of tropical forest resources;
- promoting increased and further processing of tropical timber from sustainable sources; and
- improving industry efficiency in the processing and utilization of tropical timber from sustainable sources.

*In any of the above, the following are relevant:*

- enhancing public relations, awareness and education;
- sharing information, knowledge and technology; and
- research and development.

**Selection criteria:** Fellowship applications will be assessed against the following selection criteria (in no priority order):

- consistency of the proposed activity with the Program's objective and priority areas;
- qualifications of the applicant to undertake the proposed fellowship activity;
- the potential of the skills and knowledge acquired or advanced under the fellowship activity to lead to wider applications and benefits nationally and internationally; and
- reasonableness of costs in relation to the proposed fellowship activity.

The maximum amount for a fellowship grant is US\$10 000. Only nationals of ITTO member countries are eligible to apply. The next deadline for applications will be in the early spring of 2011 for activities that will begin no sooner than mid-summer 2011.

Details will be available online in December and in future issues of the TFU.

*Further details and application forms (in English, French or Spanish) are available from Dr. Chisato Aoki, Fellowship Program, ITTO; Fax 81 45 223 1111; fellowship@itto.int (see page 2 for ITTO's postal address) or go to www.itto.int.*

**Land and resource use conflicts.** The new markets and uses for Babassu pods have created social problems and conflicts concerning the use of natural resources in the Amazon. Around 400 000 women still rely on manually breaking Babassu pods and extracting and selling the nuts for income. Besides classical problems related to their access to the land and its resources, they now have competition from alternative uses for complete (unbroken) Babassu pods, such as charcoal, liquid biofuels, and fuel pellets.

Conflicts between the charcoal industry, landowners, pod collectors and pod breaking women have recently been increasing. Charcoal companies have rented large areas of Babassu forest zones to collect the pods, which reduces the stock of pods to be broken manually by pod breaking women as well as reducing the price offered for the nuts sold by them.

## Conclusions

Sustainable management of Babassu palm forest requires new technologies, marketing and business strategies. Many of these already exist. What is lacking is the implementation of innovation and new strategies in practice.

To facilitate implementation of new technologies and strategies, a regional entrepreneurial system of innovation and technology transfer should be established. This should

aim to make the new cluster of Babassu-based businesses competitive in order to promote employment and investment as well as contributing to wealth creation and well-being in the region (Cooke 2007).

It is clear that is not easy to settle conflicts involving land use and rights, social fairness and sustainable natural resources management. However, it is also evident that new and efficient technologies for processing Babassu palm products are part of the solution to reconcile usage, protection, and conservation of the species.

## References

Cooke, P. 2007. Regional innovation, entrepreneurship and talent systems. *International Journal of Entrepreneurship and Innovation Management*. 7: 5-27.

Teixeira, Marcos Alexandre. 2004. *Estimativa do potencial energético na indústria de processamento do óleo de Babaçu*. Doctoral thesis. Unicamp, Campinas, São Paulo.

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## Fellowships awarded

Twenty-nine fellowships were awarded by the International Tropical Timber Organization in May 2010. Awardees were:

**Mr. Henri-Christian Abo Eyafa'a** (Cameroon) to undertake the Engineer of Forestry and Water Management program at Institut Polytechnique Rural de Formation et de Recherche Appliquée in Katibougou, Mali; **Mr. Akouèthé Agbogon** (Togo) to prepare a Ph.D. thesis on "Contribution to the recovery of *Sclerocarya birrea* (A. Rich) Hochst, Lannea microcarpa Engl. & K. Krause and *Hematostaphis barteri* Hook.f.: three spontaneous food timber of savannah region in Togo" at the University of Lome, Togo; **Mr. Lord Ameyaw** (Ghana) to undertake Masters research on "Farm forestry: A viable option to poverty alleviation and climate change amelioration in Ghana" at the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana; **Mr. Augustine Arthur** (Ghana) to undertake training courses in "MCITP: database developer and database administrator and MCPD: web developer" at KOENIG in New Delhi, India; **Dr. Budi Leksono** (Indonesia) to attend the XXIII IUFRO World Congress 2010 in Seoul, Korea; **Dr. N'Da Hypolite Dibi** (Cote d'Ivoire) to prepare a technical document on "Contribution of remote sensing and GIS to study climate change and their interaction on the forest dynamics in Côte d'Ivoire"; **Mr. Aimé Effa Meka** (Cameroon) to undertake a Masters program in Cartography, Remote Sensing and Geographic Information Systems applied to Sustainable Land Management at the University of Yaoundé in Yaoundé, Cameroon; **Dr. Abdul Gafur** (Indonesia) to attend the 9th International Mycological Congress (IMC9) in Edinburgh, U.K.; **Ing. Patricio Guzmán Bustán** (Ecuador) to participate in an international course on "Extension Methodologies for Sustainable Rural Development" at CATIE in Turrialba, Costa Rica; **Dr. Ekeoba Matthew Isikhuemen** (Nigeria) to attend the XXIII IUFRO World Congress 2010 in Seoul, Korea; **Dr. Shadananan Nair Krishnapillai** (India) to attend the 18th Commonwealth Forestry Conference in Edinburgh, Scotland, U.K.; **Mr. Humphrey Menyong Mbelle** (Cameroon) to undertake Ph.D. research on "A study of the diversity and population dynamics of mammals in relation to anthropogenic disturbances in forest management units of south Cameroon" at University of Yaoundé in Yaoundé, Cameroon; **Ms. Nina Mindawati** (Indonesia) to undertake Ph.D. research on "Study on site quality of *Eucalyptus urograndis* industrial plantation forest as raw material of pulp in sustainable forest management" at Bogor Agricultural University, Bogor, Indonesia; **Dr. Gangadharappa Nadiagara Rudrappa** (India) to attend the 18th Commonwealth Forestry Conference in Edinburgh, Scotland, U.K.; **Mr. Columbus Njualet Ndeloa** (Cameroon) to attend the XXIII IUFRO World Congress 2010 in Seoul, Korea; **Ms. Laxmi Kumari Neupane** (Nepal) to undertake Masters research on "Distribution pattern and economic importance of *Dalbergia latifolia* and its associated species on rural livelihood in Nepal" at Tribhuvan University, Institute of Forestry in Pokhara, Nepal; **Mr. Brice Nganda** (Gabon) to undertake a Masters program in "Development and integrated management of territories" at National Museum of Natural History with Institut AgroParis Tech and University of Montpellier in Montpellier, France; **Dr. Naresworo Nugroho** (Indonesia) to participate in the 11th World Conference on Timber Engineering 2010 in Trentino, Italy; **Ms. Deborah Oluwaseyi Ogundolapo** (Nigeria) to undertake a short course in "Spatial ecology, geospatial analysis and remote sensing for conservation" at Center for Conservation Education and Sustainability of Smithsonian Institution, Virginia, U.S.A.; **Ing. Tatiana Lizbeth Ojeda Luna** (Ecuador) to attend the 5th International Global Observation Research Initiative in Alpine Environments meeting and the Global Change and the World's Mountains Conference in Perth, Scotland, U.K.; **Mr. Adedeji Robert Ojo** (Nigeria) to undertake Ph.D. research on "Characterization of the wood properties of *Borassus aethiopicum* (Mart) from different ecological zones in Nigeria" at the University of Ibadan in Ibadan, Nigeria; **Ing. Nathaly Rodríguez Santos** (Colombia) to attend the XXIII IUFRO World Congress 2010 in Seoul, Korea; **Mr. Carlos Andrés Rogríguez Piazas** (Colombia) to publish "Study of timber markets in the Caribbean region of Colombia for forest species: *Bombacopsis quinata*, *Eucalyptus tereticornis*, *Tectona grandis* and *Gmelina arborea*"; **Ing. Nestor Javier Sagui Gómez** (Guatemala) to undertake the XXII International Intensive Course in Diversified Management of Tropical Natural Forests at CATIE, Turrialba, Costa Rica; **Mr. Mustapha Kaluwe Seidu** (Ghana) to undertake the Darwin Scholarship Programme: Monitoring and Communicating Biodiversity Course at Field Study Council in Shrewsbury, U.K.; **Dr. Vindhya Prasad Tewari** (India) to attend the XXIII IUFRO World Congress 2010 in Seoul, Korea; **Ms. Wai Wai Than** (Myanmar) to attend the XXIII IUFRO World Congress 2010 in Seoul, Korea; **Dr. Thauang Naing Oo** (Myanmar) to prepare a document entitled "Assessment on community forestry management and its development with special reference to three critical areas of Myanmar"; and **Ms. Patricia Pamela Torres Muñoz** (Peru) to undertake the XXII International Intensive Course in Diversified Management of Tropical Natural Forests at CATIE, Turrialba, Costa Rica.